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BULLETIN
OF THE
TORREY BOTANICAL CLUB

OCTOBER, 1915

The ferns and flowering plants of Nantucket—XVI

EUGENE P. BICKNELL

CICHORIACEAE

CICHORIUM INTYBUS L.

In fields and by roadsides, not very common; most frequent in the neighborhood of the town. Twenty-seven years ago Mrs. Owen, writing of the chicory as a roadside plant along the south end of Orange Street, said that it had been known there for fifty years. It has remained established there to this day. First flowers July 3, 1912; continues in bloom nearly or quite through September.

KRIGIA VIRGINICA (L.) Willd.

Dry open places throughout, sometimes in white sand on dunes and wastes. Just in flower May 30, 1909; in full flower May 30, 1908; still in bloom July 4, 1912; a few remaining flowers August 6, 1906.

* *HYPOCHAERIS RADICATA* L.

Several clusters, in early bloom July 18, 1910, among the ruins of a house foundation on "the Cliff." Collected in 1898 by Warren H. Manning below "the Cliff," "where it seemed to be well established" (F. G. Floyd).

APARGIA AUTUMNALIS (L.) Hoffm.

Abundant and, when in full bloom, brightly conspicuous in low fields and grassy places everywhere in the town region and

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elsewhere over the island. First flowers May 30, 1909, June 3, 1911, June 7, 1908, June 15, 1910, continuing in bloom through September.

Much of the fall dandelion of Nantucket is the var. *pratensis* Koch, which, in its most strongly developed form having large flowers with nigrescent-lanate involucre, appears quite like a distinct species. Notwithstanding its abundance on Nantucket, *Apargia autumnalis* is a very scarce plant on Martha's Vineyard, occurring only sparingly at a few far separated stations. The var. *pratensis* seems to have made its appearance only on a few lawns at Oak Bluffs and Vineyard Haven not far from where the Nantucket boats make their landings.

* TRAGOPOGON PRATENSIS L.

Established in grassy lots on Main Street and on Milk Street straying out along the thoroughfares. Collected by Mrs. Flynn in 1895. First flowers June 3, 1909; still some flowers July 6, 1912.

LEONTODON TARAXACUM L.

Taraxacum officinale Weber.

Taraxacum Dens-leonis Desf.

Apparently not a very common plant on Nantucket, and certainly not there the abundant weed we are ordinarily accustomed to regard it. Observed in flower from May until September.

* LEONTODON ERYTHROSPERMUM (Andrz.) Britton.

Taraxacum erythrospermum Andrz.

Frequent about the streets of the town; roadside at Island Home and near the Polpis school house; thicket in Shawkemo; Sankaty Light. In full flower and with mature heads May 30, 1909. Collected by Judge J. R. Churchill in 1904 (F. G. Floyd).

* SONCHUS ARVENSIS L.

Established in lots along Easton Street and nearby localities on the north side of the town. Collected by Mrs. Flynn south of the town in 1904. Freshly in bloom July 4, 1912; in full flower September 10, 1909.

SONCHUS OLERACEUS L.

A frequent weed of waste and of cultivated ground in and near the town and occasional elsewhere. First flowers June 12, 1909;

in early flower June 14, 1908, June 19, 1910, June 28, 1912; continues to bloom until late in September.

SONCHUS ASPER (L.) Hill.

Less often seen in the town than at far outlying points, mainly along shores. First flowers July 12, 1909; in full flower July 13, 1912; blooms until late in September.

* *LACTUCA VIROSA* L.

Farm yard in Madequet, September 14, 1907, a colony of about two dozen plants of vigorous growth but bearing no flowers. At this station on July 10, 1912, only a few plants were to be found. The plant was the common one having unlobed denticulate leaves as distinguished from the pinnatifid-leaved *L. Scariola* L.

LACTUCA HIRSUTA Muhl.

Mainly on the hills and open slopes on the eastern side of the island, the plants usually solitary or so widely separated in their association as to appear so. Frequent in Shawkemo Hills and Saul's Hills, Polpis, Siasconset, South Pasture; rare on the western side of the island. In full flower August 7, 1906; some plants continuing to bloom after the middle of September.

LACTUCA CANADENSIS L.

Scattered widely over the island in dry, open places, sometimes growing in pure sand with *Ammophila arenaria*, the plants usually solitary or not more than a few together. Often reduced in size and with numerous crowded leaves, only the lower ones spreading and pinnatifid, those above much narrowed and entire and tending to be subappressed. Blooms from midsummer until after the middle of September.

* *LACTUCA SPICATA* (Lam.) Hitchc.

Damp thickets along the Wauwinet road at Shawkemo and Quaise. There it is rather common but elsewhere it was seen only by an old storehouse near the wharves, a single very tall plant, in 1906. In full flower September 5, 1904.

HIERACIUM CANADENSE Michx.

Nowhere common but scattered widely over the downs and

commons, mostly single plants or a few together. Plants one foot high June 29, 1912; not in flower up to August 16, 1906; in full flower early in September, continuing in bloom through the month.

HIERACIUM GRONOVII L.

Very common in dry open places throughout, flowering in August and September.

Note—*Hieracium scabrum* Michx. occurs on Martha's Vineyard and on Chappaquiddick Island and may yet be found on Nantucket.

* HIERACIUM AURANTIACUM L.

In June, 1909, Mrs. Mary A. Albertson showed me fresh flowering specimens of the orange hawkweed that had been brought in to the rooms of the Maria Mitchell Association, having been gathered back of the dunes near the bathing beach.

HIERACIUM MARIANUM Willd.

Not anywhere growing in close formations but scattered openly everywhere over the plains and commons this is one of Nantucket's characteristic plants. It blooms from early June through September, and doubtless, as on Martha's Vineyard, well into October; but autumn flowering seems to come about as a sort of second flowering period, for there is a late summer interval when the species passes nearly or quite out of bloom. Earliest leaves appearing May 30, 1909; first flowers June 8, 1908, June 12, 1909, June 15, 1910.

On Nantucket this species displays a ready variability deviating from its proper type into perplexing forms that appear to be more or less intermediate with *Hieracium venosum* L., or even scarcely to be distinguished from that species. Some examples, indeed, might readily pass without question for *H. venosum*, but I have not yet seen any Nantucket specimen that I could feel satisfied should bear that determination. On the other hand frequent examples match quite perfectly those more pronounced forms of *H. marianum* that develop a stout papillose-hirsute stem, leafy up to the firmly branched panicle. But the prevailing Nantucket plant is less coarsely pubescent and has the larger cauline leaves reduced in number to one or two only, low on the stem, and a

more open, even diffuse, corymbiform inflorescence. In hard shallow soils the basal leaves are relatively short and broad and are clustered in a flattened rosulate tuft after the manner of *H. venosum*, and may be either purple-venose as in that species or wholly green. In deeper and looser soils these lower leaves are more ascending on longer petioles and are often narrowly oblanceolate and tapering acute, a few of the outermost sometimes purple-veined; those that appear earliest are almost always papillose-pilose on the upper surface. The longer pubescence at the base of the leaves and stem varies from white-pilose to coarsely papillose-hirsute with tawny hairs and, in leafy forms, may extend well up on the stem which, also, with rare exceptions, is invested throughout with a minute floccose or tomentulose canescence that passes up through the entire panicle. This canescence of the panicle, together with the very glandular, pubescent and nigrescent involucre, appears to be a character worthy of primary consideration in the determination of ambiguous examples.

The apparent absence from Nantucket of typical *H. venosum*, while yet its influence would seem to be discernible there in the unstable phases of *H. marianum*, offers the suggestion that *H. venosum* may have once belonged to the island's flora. The course of its subsequent history there may then well have been that, having lost the protection of its original woodland it had been unable to hold its proper identity against the competition and possible interbreeding of a closely related and more dominant species.

* *NABALUS SERPENTARIUS* (Pursh) Hook.

Confined almost exclusively to the open plains on the south side of the island, and uncommon except in the southwest quarter; two small plants seen in Saul's Hills. Just in flower September 14, 1899. Often dwarfed, with simple stem and terminal inflorescence, the smaller plants only 2-3 dm. high and the cauline leaves 2-3 cm. long. Stouter plants become widely bushy branched and very floriferous but are never very tall.

NABALUS TRIFOLIOLATUS Cass.

Not uncommon on the eastern side of the island in thickets and open ground, especially in the southeast quarter. On the plains

east of the middle of the island it almost entirely replaces *N. serpentarius* of the western side, the two species rarely being found near together. In full flower August 30, 1904; continues in bloom through September.

On the exposed plains this species becomes even more dwarfed than the preceding, sometimes not exceeding 1.5 dm. in height when fully mature. This open ground form displays much purplish coloration which deepens to blackish purple in the upper parts and the involucre in marked contrast with the clear white rays. Its leaves are firm and unusually small, with their narrow deeply parted divisions and lobes cuspidate-acute; the bracts of the involucre are usually narrowly attenuate. A markedly contrasting form found in shaded thickets is taller and slenderly branched, little if at all purplish tinged, and with more ample and thinner leaves, except the lowermost often nearly entire or merely hastate lobed; the involucral bracts are commonly shorter and less tapering than in the contrasted form and the rays yellowish instead of clear white.

AMBROSIACEAE

* *IVA* OVARIA Bartlett.

Iva frutescens auct. non L.

This characteristic salt marsh plant, here close to the northern limit of its range, I have seen nowhere else on Nantucket than near the harbor shore about Acquidness and Abram's Points where it thrives by the tide pools and along the marshes. Just in flower September 3, 1904.

* *IVA* XANTHIIFOLIA Nutt.

A single large plant in flower and fruit near the wharves September 15, 1904. A vigorous group on Howard Street, July 12, 1912, the tallest plants four feet high and the inflorescence just beginning to appear. This same colony had been observed by Mrs. Flynn August 17, 1911, and was also discovered by Miss Grace Brown Gardner, who has sent me fruiting specimens collected September 1, 1913.

The plants from these two stations seem to represent two rather distinct forms of the species, one having leaves triangular-

ovate and harshly papillate-pubescent, the other possessing a much finer and closer, even a soft, canescent pubescence, and more or less cordate leaves. In the latter, the Howard Street plant, the larger leaves were deeply cleft into three, or even five, broad overlapping lobes, these also deeply lobed and cut; the largest leaves were over 2 dm. in length and breadth, their primary divisions over 12 cm. wide.

* *AMBROSIA TRIFIDA* L.

A few rather low plants, with unlobed leaves, in waste spot west of the town, August 11, 1906, in full flower; young plants mostly under 15 cm. high, with deeply three- to five-lobed leaves, in a farm yard in Polpis, June 12, 1911.

AMBROSIA ARTEMISIAEFOLIA L.

An abundant weed flowering from late summer doubtless until killed by frost. Represented by several varieties or elementary species differing in leaf pattern and pubescence.

* *AMBROSIA PSILOSTACHYA* DC.

Mrs. Flynn has kindly sent me for examination specimens of this species in full flower and fruit collected by her near Sankaty Head, August 13, 1897. Dr. Rydberg has examined these specimens with me at the herbarium of the New York Botanical Garden. They are perfectly typical and are closely matched by numerous examples from the far west. I do not know that this species has ever been recorded from east of Illinois other than as a ballast plant, but it seems quite possible that it may have been making its way eastward unnoticed through its similarity to *A. artemisiaefolia*. Its presence on Nantucket in a part of the island where unusual introduced plants would scarcely be looked for is not suggestive that it is a wholly exceptional waif in our eastern flora. It is in point that it occurs also on Martha's Vineyard, where I found it along a weedy roadway at Edgartown in full flower September 14, 1910, and in mature fruit October 12, 1911. The only other eastern specimen of which I have any knowledge is one in the herbarium of the New York Botanical Garden collected on ballast ground at Weehawken, New Jersey, September 6, 1895. But as far back as 1888 the species was included among the ballast plants found in the vicinity of New

York and Philadelphia, which was published in the "Preliminary Catalogue of plants within one hundred miles of New York City," compiled by a committee of the Torrey Botanical Club.

XANTHIUM ECHINATUM Murr.

Primarily a plant of the sea beaches, but not infrequent in waste places away from the shore. It thrives best where saline influences are strongest, and on the exposed ocean front becomes larger and coarser as well as paler in color than when growing along bays and estuaries, and at interior stations where it has chanced to spring up. Seedlings, May 30, 1909, unfolding their first leaves between the large spreading cotyledons; plants very small July 3, 1911; in full flower and fruit through September.

COMPOSITAE

* *EUPATORIUM MACULATUM* L.

Rare; in "the Woods" several small scattered groups were just in bloom September 8, 1904; elsewhere it was seen only in a boggy spot east of Miacomet Pond, a single cluster.

* *EUPATORIUM PURPUREUM* L.

At one station only, and only a single group of plants. These grew on a bank in a low open thicket in Shawkemo, towards Quaise, the tallest plants nearly six feet high. When first seen, September 11, 1907, most of the stems had been trampled down by cattle and none had flowered. On June 7, 1908, they were growing up again, the larger stems being eighteen inches high. The plant is typical of *E. purpureum* as distinguished from *E. trifoliatum* L.

EUPATORIUM PERFOLIATUM L.

Abundant in low grounds. In August and September when the waters of the island are low the boneset may be seen in full flower fringing the high water line around many a pond and pool then well back from the water's edge, its masses of bloom sometimes forming an unbroken zone of white around the sandy shores. Evidently its seeds are carried by the wind to the surface of the ponds at the season of high water and are floated in numbers to the shore, finding protection in the flotsam there and a favorable medium for their germination the following season.

EUPATORIUM VERBENAEFOLIUM Michx.

Common in low grounds, often about thickets and among open growths of shrubbery. Flower buds visible July 4, 1912; in full flower August 7, 1906; blooming through September. The Nantucket plant, although often quite typical, is mainly the form with narrowed deeply incised leaves—var. *Saundersii* Porter.

EUPATORIUM PUBESCENS Muhl.

A single cluster in full flower August 16, 1906, at the border of a low thicket in Quaise. Collected on Nantucket twenty-three years earlier, August 18, 1883, by Judge J. R. Churchill. Judge Churchill has most kindly sent me for examination his specimen collected at that time, which is of particular interest as having been the basis of Mrs. Owen's record of *Eupatorium rotundifolium* on Nantucket. It is one of those troublesome forms that seem to lie midway between typical examples of *E. rotundifolium* and *E. pubescens*, and is very similar to my own Nantucket specimens which, after careful study, I do not doubt are properly referable to *E. pubescens*. Judge Churchill's specimen is a stout and large-leaved plant, the leaves reaching a size of 5–6 cm. in length by 4–5 cm. in breadth. As is the case with my own more slender and smaller-leaved specimens the number of flowers in the heads is mostly seven.

* EUPATORIUM HYSSOPIFOLIUM L.

Dry open ground near Sachacha Pond, on the southwest side, a considerable colony just in bloom August 13, 1906; Spotsor Country, several scattered stations; two small plants below "the Cliff," 1907; Pocomo, in full flower September 21, 1907.

* EUPATORIUM AROMATICUM L.

About dry thickets and in neighboring open ground, local. Quaise; Polpis, at several stations, and in abundance at one locality near Almanac Pond; by the railroad near the fifth mile post; Siasconset. In full flower August 31, 1904, September 19, 1907. Collected by Mr. Floyd near Tom Never's Head in 1902.

* MIKANIA SCANDENS (L.) Willd.

Wet thicket along Watt's Run where it twines in luxuriant growth among the shrubbery and in late August and in September

is conspicuous from its profuse bloom. "Gibb's Swamp, one plant, 1895, L. L. Dame" (F. G. Floyd).

LACINARIA SCARIOSA (L.) Hill.

A characteristic and attractive late flowering plant of the downs and moorland. It is found throughout the length of the island but, except locally, seems to be common only on the eastern side, more especially towards the southeast. It is scarce in the immediate vicinity of the town although frequent westward towards the waterworks; eastward it is scarcely to be found nearer than Shawkemo, and still further east and northeast it is scarce except in Pocomo; southeast of the town it first appears about two miles out near the railroad and south of the County Fair grounds, extending thence into Saul's Hills and southeast to the ocean shore where it may be seen flourishing in the wastes of white sand through which the railroad approaches Siasconset. It occurs in Madequet but seems to be wanting over most of the western half of the island. Widely variable. Plants a few inches high July 11, 1912; a few early flowers August 6, 1906; continues in bloom through September. One plant with white flowers, Almanac Pond, 1902 (F. G. Floyd). It is a common plant of Chappaquiddick Island, but I have not seen it elsewhere on Martha's Vineyard.

CHRYSOPSIS FALCATA (Pursh) Ell.

The golden aster is one of the very abundant plants of Nantucket, perhaps even more numerous than the bearberry, probably because less fastidious in its choice of soils, and spread far and wide over fields and plains where the bearberry has not made its way. Throughout the length and breadth of the island it is at home everywhere in dry sandy exposures where other vegetation is low and scant, even on the dunes and wastes of white sand where the beach grass may be the only other living thing. A precocious flower June 27, 1910; two open flowers July 8, 1912, flowers at several places the following day, quite generally in bloom two days later. Continues to bloom into October.

SOLIDAGO CAESIA L.

This golden-rod is among those named in Mrs. Owen's list. It is common on Martha's Vineyard and I have always expected

to come upon it somewhere on Nantucket but have never yet met with it there.

* *SOLIDAGO BICOLOR* L.

Found only on the eastern side of the island, mainly in the southeast quarter in the neighborhood of the railroad and scattered sparingly towards Saul's Hills; also near Sachacha Pond and Wauwinet. Just in flower September 1, 1904.

Although rather a scarce species on Nantucket it is there subject to as notable a degree of variation in leaf form and pubescence as is seen in regions where it grows in abundance. But beyond these usual variations are the more divergent characters of a form that I have seen nowhere else than on Nantucket. This is characterized by a pale or whitened appearance throughout due to a hoary-tomentulose canescence that invests the stem and branches and develops on both surfaces of the leaves into a soft tomentose or velutinous indument; and it is further noteworthy in its inflorescence which is borne at the ends of slender terminal branches that are closely set with small leaves of nearly uniform size; the flowers are small, their involucre only 2-3 mm. high, and the green tips of the scales, often so obvious in this species, are only faintly if at all perceptible. This variety appears to occur only on the open plains and scrub oak barrens in the southeastern quarter of the island.

SOLIDAGO PUBERULA Nutt.

A common golden-rod of the moorland and oak barrens and of open sandy places in certain soils. It is perhaps more abundant in the southwest and the northwest quarters than elsewhere, and is quite wanting in many parts of the island where the conditions do not differ obviously from those of the sections where it abounds. Just in bloom September 14, 1907. The panicle varies in form from virgate and only 2 cm. wide to oblong-pyramidal and more than 12 cm. in natural spread at its widest part.

SOLIDAGO ODORA Ait.

Rather common, although somewhat locally distributed, preferring open growths of low shrubbery in light sandy soil. Not in flower up to mid-August, 1906; mostly past flowering September 19, 1907.

SOLIDAGO SEMPERVIRENS L.

Along all the sea beaches and salt marshes, sometimes inland in dry sandy spots or in low grounds. A precocious spray in full bloom June 22, 1910; not nearly in flower up to August 16, 1906; blooming till late autumn.

SOLIDAGO RUGOSA Mill.

Frequent or rather common mainly on the eastern side of the island in or about low grounds. First flowers September 2, 1904, September 7, 1906.

A low villous form found in Polpis had small and narrow almost leafless panicles and numerous crowded leaves smooth or nearly so on the upper surface, the narrowly cut teeth with subcartilaginous tips, many of them firmly declined and even reflexed.

* SOLIDAGO RUGOSA $\times$ SEMPERVIRENS.

S. asperula Desf.

On a bank at the southwest side of Capaum Pond, several clusters in full flower September 12, 1907, growing with both *S. rugosa* and *S. sempervirens*. A distinct appearing and not rare seaboard golden-rod occurring sporadically and always, so far as I have observed it, in association with both of its reputed parents.

It is interesting, in view of the scarcely to be doubted hybrid character of this plant, that the most considerable colony I ever met with was in full bloom while yet its supposed parents growing close about it showed not an open flower. This was near Long Beach, Lond Island, September 5, 1909; on that day a few precocious flowers of *S. sempervirens* were seen at places favorable to early flowering, but *S. rugosa* was not anywhere nearly in bloom.

* SOLIDAGO ASPERA Ait.

Common, mainly along the borders of thickets and on dryish levels in low grounds. Not yet in flower up to August 16, 1906, just in bloom September 2, 1904.

A little recognized and widely variable golden-rod, not ordinarily to be confused with *S. rugosa*, but often associated with it and quite probably subject to intercrossing.

* *Solidago aestivalis* sp. nov.

A common Nantucket golden-rod of low grounds and boggy places, closely related to *S. rugosa*, but having a much earlier flowering period, and notable as the earliest flowering golden-rod of the island. In full flower August 4, 1906; passing out of bloom September 2, 1904, when the earliest flowers of *S. rugosa* were only beginning to appear; mostly past flowering and many panicles dried and brown September 1, 1907. Common also on Martha's Vineyard and on Lond Island and occurring on Staten Island.

Commonly from 8–12 dm. high (2–20 dm.), the stem strongly striate-angled, especially above, glabrous and shining or occasionally with some scattered hairs, typically deep or even bright purple throughout including the branches of the panicle; leaves deep green, numerous, the larger 6–14 cm. long and 2–3 cm. wide, elliptic-lanceolate, attenuate or acuminate, often abruptly rounded at the extreme base, the lowermost narrowed into rather long, margined petioles; blades not ordinarily rugose nor prominently venulose, appressed-serrate or, in one form, openly cut-serrate, the upper surface often lustrous, smooth and glabrous or with some scant obscure hairs, thinly pubescent with loose tapering hairs on the veins beneath, the narrower lower leaves sometimes finely close pubescent, their margined petioles ciliate; branches of the inflorescence angled and thinly villous-pubescent; inflorescence commonly of wide spreading and recurved foliaceous branches forming a broad open panicle, or the panicle sometimes elongated and short branched; heads numerous and crowded, secund in paniculate leafy-bracted racemes and short ultimate clusters; involucre 2.5 to 3.5 mm. long, its bracts linear-oblong to linear, obtuse, mostly ciliolate, subcarinate, firm, broader and less tapering than those of *S. rugosa* and not recurving in age, the prominent midrib mostly broadened into the greenish tip; rays commonly eight (6–12), the heads spreading 4–5 mm.; achene pubescent.

Type from Hewlett, Long Island, August 9, 1914, deposited in the herbarium of the New York Botanical Garden.

In the coastwise swamps of southern Long Island this golden-rod comes into bloom from the middle of July until early in August, three to five weeks in advance of *S. rugosa* and much of it is past flowering at the time the latter begins to bloom. The close relationship of *S. aestivalis* to *S. rugosa* is evident enough, and examples are not wanting that suggest either that the two are

sometimes intergradient or that they occasionally hybridize. Nevertheless it would be little doubted, I think, by anyone coming to know *S. aestivalis*, that it was essentially distinct, and long ago it became to me an authentic and, from its early time of flowering, a particularly interesting member of the golden-rod group. Its smooth and purple striate-angled stem is notably at contrast with the more terete and papillate-hirsute or villous stem of normal *S. rugosa*, although its smoothness may not be taken as a strictly determining character, for *S. rugosa* occasionally passes into glabrate forms; but such divergent plants, as I have met with them on Long Island, are obviously only local variations from the type not at all to be correlated with the normally glabrous stemmed *S. aestivalis*. In view of such variations, however, the characters of the latter might be given less weight did not its definitely earlier flowering period, both in its beginning and ending, imply a very pronounced remove from identity with the broadly similar *S. rugosa*.

SOLIDAGO ELLIOTTII T. & G.

Common in low grounds. Some flowering panicles September 10, 1907, but not yet generally in bloom at that time.

SOLIDAGO UNILIGULATA (DC.) Porter.

Not infrequent in *Sphagnum* bogs on the eastern side of the island. Not in flower up to the middle of August, 1906; in full bloom September 5, 1904.

Note.—*Solidago neglecta* T. & G. is named among the golden-rods of Mrs. Owen's catalogue, and it may well be a rare plant of Nantucket, but no evidence appears that it has ever been collected there. It is quite possible to mistake for it large examples of *S. uniligulata* or even forms of *S. Elliottii*.

* SOLIDAGO JUNCEA Ait.

This common eastern golden-rod seems to be all but absent from Nantucket, only a solitary cluster having been discovered there. This grew on a dry slope near the Wauwinet road about half a mile west of Pulling Mill Creek. On August 16, 1906, its several vigorous stems bore panicles of close green buds, and on September 11, 1907, it was in full bloom. The plant was perfectly

typical of the ordinary glabrous open ground form of the species, and this is to be particularly noted for a very interesting reason: all over Chappaquiddick Island grows the similar plant known as var. *scabrella* Gray, not hitherto reported, I think, on our eastern seaboard. Typical *S. juncea* was not found on Chappaquiddick Island, nor did I meet with it anywhere on Martha's Vineyard.

SOLIDAGO ALTISSIMA L.

S. canadensis Auct. non L.

Common, mainly along thickets near low grounds; disposed to grow in close masses, and frequently forming a broad encircling zone of yellow around the thickety borders of pond holes. Not nearly in flower August 16, 1906; freshly in bloom August 24, 1904.

The Nantucket plant is all typical of *S. altissima* as now understood, at least I did not succeed in finding on the island a smaller-headed and less pubescent golden-rod of the same group that is common in the neighborhood of New York and which, if it be the true *S. canadensis* of Linnaeus, as would seem to be altogether probable, judging from the description in Species Plantarum, is manifestly not the same as the more northern plant now known by that name and earlier described as var. *glabrata* Porter.

SOLIDAGO NEMORALIS Ait.

The Nantucket *S. nemoralis* is a hoary-canescens, mainly depressed or prostrate form that has been characterized by Professor Burgess as var. *arenicola*. It is an abundant species, perhaps the most so of all the Nantucket golden-rods, growing everywhere on open sandy levels, so thickly in many places as to give its color conspicuously to extensive tracts that support no tall herbage, but where the golden aster and the violet-flowered *Ionactes* aster also abound. Even in its more erect states it displays a strikingly different aspect from the more usual forms of *S. nemoralis*, but it appears to possess no essential distinctive characters. On Nantucket I have seen no examples unmistakably referable to typical *S. nemoralis*, but on Martha's Vineyard the case is different. There the divergence from *S. nemoralis*, although often as great, is not at all as general, and many examples are intermediate between the two forms. The case is analogous to that of a number of other plants, that, on Nantucket, show a

greater development of pubescence and a less erect habit than their usual mainland forms. First flowers early in September, 1904; in full bloom September 10, 1907.

EUTHAMIA GRAMINIFOLIA (L.) Nutt.

Local in dry places in all quarters of the island, especially on the eastern side, but irregularly distributed and wholly wanting throughout extensive areas. Not yet in flower August 16, 1906; first flowers September 17, 1907.

EUTHAMIA TENUIFOLIA (Pursh) Greene.

In dry or in damp sandy soil, or even in heavy soil in low grounds. Perhaps the commonest and most generally distributed golden-rod of the island, unless *S. nemoralis* should bear that distinction. Just in flower August 16, 1906.

Perplexingly variable. Some coarser forms appear to be quite intermediate with *E. graminifolia*. More delicate plants formerly included with this are better referred to the following, which, however, may be viewed with some reservation as to its validity.

EUTHAMIA MINOR (Michx.) Fernald.

Common, in its extreme form appearing like a very distinct species, but apparently intergrading with the preceding.

SERICOCARPUS LINIFOLIUS (L.) B.S.P.

Widespread over the downs and commons and invading open tracts of scrub pine, growing in separate often solitary tufts of stiff clustered stems. First flowers July 11, 1912, in full flower through August; late flowers in protected places September 12, 1907.

SERICOCARPUS ASTEROIDES (L.) B.S.P.

Everywhere on the open commons and hillsides, as well as in pine woodland, growing in small colonies of separate plants. First flowers July 11, 1912; in full flower through August and continuing to bloom through most of September.

* *ASTER DIVARICATUS* L.

Not uncommon in Squam, and occasional in Polpis, but so closely hidden in dense thickets as to be little seen unless carefully sought for. In full flower September 17, 1907.

On Nantucket this aster seems to be not widely variable, and wherever observed, except at one station, was characteristic of typical *A. divaricatus*, as defined by Professor Burgess; specimens from a number of stations agree closely with examples so named by him in the herbarium of the New York Botanical Garden. The only marked variation observed was in a thicket in Squam where specimens, in leaf only, collected July 4, 1912, seem to show a definite approach to *Aster persaliens* Burgess (Mem. Torrey Club 13: 140. 1906).

On Chappaquiddick Island the species is less exclusively true to type and is represented by several well marked forms.

ASTER UNDULATUS L.

Nowhere in great abundance, but widely scattered over the moorland and commons, growing up into taller forms in the borders of thickets. Small green flower buds August 10, 1906; first flowers September 12, 1907. Widely variable, passing into the vars. *loriformis* and *torquatus* of Professor Burgess.

An ambiguous aster, a solitary plant of its kind, collected below "the Cliff" September 22, 1907, is linear-leaved and violet-flowered, and slightly roughish puberulent on stem and leaf. It appears to combine so unmistakably characters of *Aster undulatus* and *Aster dumosus* that there would seem to be little reason to doubt a hybrid origin from those species.

ASTER PATENS Ait.

A common dry soil aster of thickets and open ground. Often reduced in size and bearing small and much roughed leaves, and relatively small heads with deep colored rays. A single precocious flower August 16, 1906; generally just in bloom September 11, 1907.

ASTER NOVI-BELGII L.

The prevailing aster of low grounds and boggy places, widely variable and readily passing into a number of diverse forms; var. *elodes* Gray is common throughout; var. *atlanticus* Burgess, although rather scarce, is sometimes of pronounced character, the larger leaves becoming 1.5 dm. long by 3 cm. wide; other forms seem to be more or less representative of var. *littoreus*

Gray. In full flower through September; precocious flowers are frequent before the middle of August.

An aster in full flower, collected by the Wauwinet road near Norwood, is quite intermediate between this species, more especially var. *elodes*, and *Aster dumosus*, and has every appearance of being a hybrid.

ASTER CONCOLOR L.

One of the conspicuous late flowering plants of the plains and commons. It is not ordinarily densely massed in growth, but at Hummock Pond along a bank of white sand close to the ocean shore it was seen late in September outspread in an even more continuous breadth of color than a bed of violets in spring. First flowers September 8, 1904, September 15, 1907. It is also a very common aster of Chappaquiddick Island where I have seen it still in full flower as late as the middle of October.

The pubescence of the early leafy shoots is remarkably different from the canescent investiture of the mature stems consisting of silky-villous horizontally spreading hairs, some of them 4-5 mm. in length. The earlier leaves which are spreading, and densely pilose and long ciliate, are, by a twist at the base, brought into two opposite series along the stem with their surfaces in lateral aspect instead of horizontal, after the manner of *Lactuca virosa*.

ASTER SPECTABILIS Ait.

Rather common towards Siasconset in open thickets of low shrubbery in dry places; scarce in other parts of the island: Wauwinet road less than two miles from the town; near the south shore to the west of Miacomet Pond; north of Long Pond. In full flower August 30, 1904; September 11, 1907.

ASTER DUMOSUS L.

Perhaps the most common and generally distributed aster of the island, most numerous in sandy soil in low grounds. In full flower September 10, 1907. Forms having small heads with deep lavender rays contrast markedly with other forms having larger heads with the rays pure white. A form referable broadly to the var. *cordifolius* (Michx.) T. & G., yet not the same as the typical southern extreme of this plant, is occasional in pine barrens.

* *ASTER VIMINEUS* Lam.

In damp places in fields and open ground, rather scarce, the var. *foliolosus* Gray occasional. Just in flower September 4, 1904; not yet in bloom September 12, 1907.

* *ASTER LATERIFLORUS* (L.) Britton.

Frequent or rather common in thickets on the eastern side of the island. Small green flower buds August 13, 1906; just in bloom September 11, 1907.

In the ordinary shade forms the leaves may be thin and coarsely cut-serrate, becoming over 2.5 cm. broad, or narrow, and entire or nearly so. In more open thickets the plant becomes taller, sometimes 1.2 m. high, with the openly wide spreading or drooping branches 4-5 dm. long—var. *pendulus* Burgess; forms similar to this growing in sunnier places are sometimes almost grayish puberulent in their upper parts, and have linear-lanceolate and rather roughish leaves, and narrower involucral bracts than the more glabrate shade forms. Other forms agree closely with specimens labeled by Professor Burgess var. *horizontalis* (Desf.).

* *ASTER MULTIFLORUS* Ait.

Very common in dry fields and along roadsides as well as in the town streets. Here and there a plant showing its earliest flowers September 12, 1907. At certain localities on exposed levels near the south shore many dwarf plants grow firmly prostrate on the parched soil blooming no less profusely than the normal erect plant.

* *ASTER PRINGLEI* (A. Gray) Britton.

One of the surprises of Nantucket. A numerous colony established along the face of the low clayey bank back of the beach at Siasconset, south of the settlement, in full flower August 30, 1904; much of it past flowering September 15, 1907.

It was so unexpected to find this aster on the seaboard, and at the latitude of Nantucket, that I have been particular to have its identity confirmed by Professor Burgess. It is perfectly typical and closely matches authentic material from Vermont, Michigan and Wisconsin.

Note.—If *Aster ericoides* L. occurs on Nantucket it is yet to

be detected there. The absence of this common eastern species is one of the noteworthy negative features of the Nantucket flora. Its name does, indeed, appear among those of the common asters of Mrs. Owen's catalogue, but since the abundant *Aster multiflorus* is omitted it seems to be evident that the one was mistaken for the other. It occurs on Martha's Vineyard where, however, it is scarce and local.

* *ASTER TENUIFOLIUS* L.

Locally common in salt marshes along the harbor in the north-eastern quarter of the island, growing in the black grass (*Juncus Gerardi*): Quaise, Swain's Neck, Squam, Pocomo. In early flower August 16, 1906; in full flower September 21, 1907. Observed in flower on Chappaquiddick Island as late as October 12, 1911.

ASTER SUBULATUS Michx.

One of the common plants of the salt marsh flora, mainly on mud flats and along the borders of tide pools and ditches, blooming during September. In full flower on Chappaquiddick Island as late as October 9, 1910.

IONACTIS LINARIIFOLIUS (L.) Greene.

An abundant aster of the dry sandy plains and commons. Its natural flowering season, when everywhere it reaches its height of bloom, appears not to begin much before mid-September, but precocious flowers are frequent in midsummer, and have been observed as early as July 5 (1912). First flowers early in September, 1904, September 12, 1907; generally still in full bloom on Chappaquiddick Island as late as October 11, 1908.

DOELLINGERIA HUMILIS (Willd.) Britton.

Somewhat locally rather common in low grounds across the northern side of the island, also about Siasconset. Minute flower buds July 11, 1912; not in bloom up to August 16, 1906; in full flower during September.

A striking bit of evidence of the far reach to Nantucket of a more southern flora is the replacement there of the common *Doellingeria umbellata* (Mill.) Nees, natural to the latitude, by this closely related plant that is not known elsewhere north of southern New Jersey. It matters little how close may be the relationship

of these asters, or even if they are intergradient—here on Nantucket is the plant of the New Jersey pine barrens in exact counterpart and perfectly acceptable to the eye as being not the same as its more northern relative. As compared with the latter the Nantucket plant has shorter and broader leaves of thicker texture, deeper green above and conspicuously pale beneath, harmonizing well by contrast of color with the usually deep purple stems. Although it grows to a height of 1.5 m. and has leaves as broad as 3–4 cm., there is an interesting smaller form only 5–6 dm. high with more numerous crowded leaves, 4–5 cm. long, 1.25–1.50 cm. broad. In the most typical examples the involucral bracts are broader and more obtuse than those of *D. umbellata*, and the pappus at maturity is of a bright cinnamon brown color. It is quite possible that typical *D. umbellata* grows in some of the Nantucket swamps but I have never collected it.

* *ERIGERON PULCHELLUS* Michx.

Not infrequent in Pocomo, especially towards Wauwinet; observed elsewhere only in Quaise, a small colony, and at the border of Tom Never's Swamp, a solitary cluster. In full flower June 9, 1909, 1911.

* *ERIGERON PHILADELPHICUS* L.

Several well developed plants in full flower June 22, 1910, at the border of a swamp west of Long Pond.

* *ERIGERON ANNUUS* (L.) Pers.

Scarce. A single flowering plant in an old field near Miacomet Pond September 21, 1899; a group in the same locality, just in bloom June 22, 1910; one plant on Lily Street August 6, 1906; well colonized in a pasture near Island Home, June, 1912.

ERIGERON RAMOSUS (Walt.) B.S.P.

Widely scattered over the downs and commons, mostly single plants of low stature; of better size and more gregarious habit in old fields and grass lands. First flowers June 18, 1908, June 25, 1910, 1912, blooming through September.

Mrs. Owen's catalogue records the occurrence of the frequent form or state of the species having the rays very short or wanting—var. *discoideus* Robbins.

LEPTILON CANADENSE (L.) Britton.

Erigeron canadense L.

A very common weed of old fields and dry open places, blooming in August and September.

* LEPTILON PUSILLUM (Nutt.) Britton.

Erigeron pusillus Nutt.

In December, 1913, it was shown by Dr. Robinson (Rhodora 15: 205-209) that *Leptilon pusillum* was a valid species, an acute discrimination, and the plant was reported from localities in the Cape Cod region and from Martha's Vineyard, and, as these pages go to press, I am enabled to record it from Nantucket, typical examples, collected during the past season, having been sent to me by Miss Grace Brown Gardner. Miss Gardner writes me that she met with it at a number of localities, and I myself, in a very brief visit to Nantucket late in September, found it to be widely scattered there, inland as well as near the shores. It was also found to be an abundant plant of Martha's Vineyard, fully as numerous, I think, as *Leptilon canadense* and, like that familiar weed, distributed from the sandy levels along the shores to open hillsides in the interior of the island. Where it mixed freely with *L. canadense* there were not wanting examples that appeared almost to unite the two species, although no specimens were found that could not be fairly assigned to the one or the other. The purple tips of the involucre bracts which, from observations made on Long Island, I had come to look upon as an absolutely constant character, here proved to be, locally, a very unstable one. In most specimens, however, in which at first sight the purple tips seemed to be absent, it was usually possible to detect them in some of the heads, even if only on the inner bracts. Occasional specimens in which the purple tips were quite wanting showed involucres more or less purple tinged throughout. Late in the season the rays both of this species and of *L. canadense* often become pink tinged or rose color, and purple tips often appear on some of the involucre bracts of *L. canadense*.